

**COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN II)
Northern and Central California, Nevada, and Utah
CONTRACT Number N62474-94-D-7609
Contract Task Order 318**

Prepared For

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**RECORD OF DECISION/REMEDIAL ACTION PLAN
FOR SITE 12
NAVAL AIR WEAPONS STATION
CHINA LAKE**

DS.0318.14673

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ACRONYMS AND ABBREVIATIONS

APCD	Air pollution control district
ARAR	Applicable or relevant and appropriate requirement
bgs	Below ground surface
BMP	Best Management Practices
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	Chemical of potential concern
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
ESD	Explanation of significant differences
FS	Feasibility study
HSAA	Hazardous Substance Account Act
MCL	Maximum contaminant level
mg/kg	Milligram per kilogram
µg/L	Micrograms per liter
msl	Mean sea level
NAWS	Naval Air Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
POI	Point of interest
ppm	Part per million
PRG	Preliminary remediation goal
RAB	Remedial advisory board
RAO	Remedial action objective
RAP	Remedial action plan
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial design and remedial action
RI	Remedial investigation
ROD	Record of decision
RWQCB	Regional Water Quality Control Board, Lahontan Region
SARA	Superfund Amendments and Reauthorization Act
SVOC	Semi-volatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
UCL	Upper confidence limit
UST	Underground storage tank
VOC	Volatile organic compound

1.0 DECLARATION

1.1 SITE NAME AND LOCATION

Naval Air Weapons Station (NAWS) China Lake is located in the southeastern California desert, approximately 150 miles northeast of Los Angeles. NAWS China Lake is an active military facility. The installation is not listed on the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) National Priorities List (NPL).

This record of decision/remedial action plan (ROD/RAP) addresses the cleanup of Site 12 at NAWS China Lake. Site 12 consists of an abandoned quarry and adjoining asphalt batch processing plant; an area within the quarry is the site of a closed landfill. Only the landfill portion of Site 12 requires remedial action.

1.2 STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedy for Site 12 at NAWS China Lake. The remedy was chosen in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the California Hazardous Substance Account Act (HSAA). This decision document complies with the requirements of a ROD under CERCLA and a RAP under HSAA. A statement of reasons, as required by HSAA, Health and Safety Code Section 25356.1, is included in Appendix A.

This decision is based on the administrative record file for this site. Appendix B contains a list of the documents in the administrative record.

The State of California Department of Toxic Substances Control (DTSC) and Regional Water Quality Control Board (RWQCB) - Lahontan Region concur with the selected remedy.

1.3 ASSESSMENT OF THE SITE

The response action selected in this ROD/RAP is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 DESCRIPTION OF SELECTED REMEDY

The Navy, with the concurrence of the State of California, has selected containment and land-use controls as the selected remedy for the Site 12 landfill at NAWS China Lake. The remedy addresses the principal threats by ensuring that the landfill debris is contained and that access to the site is restricted. The major components of the selected remedy for the Site 12 landfill are as follows:

- Repairing the existing cover, as necessary

- Regrading the landfill cover to improve drainage
- Continued maintenance of the fence, warning signs, and berms around the landfill
- Restrictions in the land-use management plan prohibiting activities that would impair the integrity of the cover

No action is required at any other area of Site 12.

1.5 STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action (unless justified by a waiver), is cost effective, and utilizes permanent solutions and alternative treatment (or resource recovery) to the maximum extent practicable. The remedy does not satisfy the statutory preference for treatment as a principal element because the volume and heterogeneity of the landfill wastes makes excavation and treatment impracticable. Because this remedy will result in debris that potentially contains hazardous substances remaining buried on site in excess of levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the remedy continues to be protective of human health and the environment.

With respect to groundwater monitoring, the Navy has already met the statutory requirements of Section 20080(g) of Title 27 of the California Code of Regulations (CCR) in that a groundwater monitoring program has been implemented at Site 12 during the RI process and no threat to groundwater quality has been found. Although, not driven by a regulatory requirement, Navy will develop a groundwater monitoring plan associated with its 5-year review requirement under CERCLA in order to ensure the remedy continues to be protective of human health and the environment. The details of the monitoring program will be developed in cooperation with DTSC and RWQCB when the Navy prepares the 5-year review monitoring plan.

1.6 RECORD OF DECISION DATA CERTIFICATION CHECKLIST

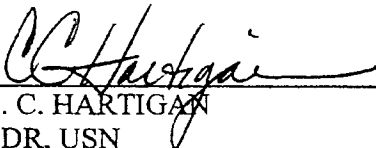
The following information is included in the Decision Summary (Section 2.0) of this ROD/RAP:

- Chemicals of potential concern and their respective concentrations (Section 2.5 – Site Characteristics)
- Baseline risk associated with the chemicals of potential concern (Section 2.7 – Summary of Site Risks)
- Remedial action objectives and the basis for these objectives (in lieu of cleanup goals) (Section 2.8 – Remedial Action Objectives)
- Current and reasonably anticipated future land-use assumptions and current and potential future beneficial uses of groundwater (Section 2.6 – Current and Potential Future Land and Resource Uses)

- Potential land and groundwater use that will be available at the site as a result of the selected remedy (Section 2.6 – Current and Potential Future Land Uses)
- Estimated costs of the selected remedy (Section 2.11 – The Selected Remedy)
- Key factors that led to selecting the remedy (Section 2.11 – The Selected Remedy)

Additional information can be found in the Administrative Record file for Site 12
(Section 2.3 – Community participation and Appendix B – Administrative Record Index).

1.7 AUTHORIZING SIGNATURE



C. C. HARTIGAN
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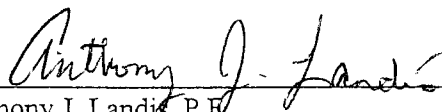
8/30/2001

(Date)

1.8 CONCURRING SIGNATURES

This RAP/ROD decision document presents the final remedy selected by the Department of Navy for Site 12 at NAWS China Lake. The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

In addition, the selected remedy was chosen in accordance with the State of California Hazardous Substance Account Act (HSAA), which is contained in Chapter 6.8 of the California Health and Safety Code (HSC) and specifically complies with HSC section 25356.1. This decision document is based on the administrative record file for Naval Air Weapons Station – China Lake.



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California Environmental Protection Agency
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10-11-01
(Date)

Harold J. Singer
Executive Officer
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(Date)

2.0 DECISION SUMMARY

This section provides a brief overview of Site 12's history, setting and site characteristics, the alternatives considered in the feasibility study (FS) and a comparative analysis of those alternatives. It also includes a description of the selected remedy and explains how it fulfills the CERCLA statutory requirements for remedy selection.

2.1 SITE NAME, LOCATION, AND DESCRIPTION

NAWS China Lake is located in the southeastern California desert, approximately 150 miles northeast of Los Angeles (Figure 1). NAWS China Lake is composed of two major areas: the China Lake Complex and the Randsburg Wash/Mojave B Complex. The 950-square-mile China Lake Complex is located in Inyo, San Bernardino, and Kern counties. The China Lake Complex contains the majority of range and test facilities. The Randsburg Wash/Mojave B Complex is 11 miles southeast of Spangler Hills access in San Bernardino County.

Site 12 is located in the China Lake Complex, approximately 1.5 miles west of the main gate along the southern boundary of the facility (Figure 2). Site 12 consists of an abandoned 35-acre gravel quarry and an adjacent former asphalt processing batch plant that relied on the quarry for raw materials (that is, sand and gravel). The closed landfill occupies approximately 15 acres within the quarry.

Pursuant to CERCLA and Executive Order No. 12580, the Department of the Navy is the lead agency for cleanup of sites at NAWS China Lake. The State of California DTSC and RWQCB provide support to the Navy in evaluating and selecting response actions. The source of cleanup funds is the Environmental Restoration Navy Account.

2.2 SITE HISTORY

The installation was established in 1943 as the Naval Ordnance Test Station. The installation supports the Department of Defense and Navy Research, Development, Test and Evaluation mission for air warfare systems.

The Site 12 landfill received approximately 100 tons per year of solid waste from 1952 to 1979, including tree trimmings, construction debris, cans and barrels, small electrical parts, plastics, rags, and possibly miscellaneous unspecified chemicals and ordnance, but no household garbage. An asphalt batch

processing plant that relied on the quarried sand and gravel for raw materials was located just southwest of the landfill. The batch plant is visible in historical aerial photographs. Landfill debris was possibly covered with silt and clay quarry overburden and spoil generated from the selective processing of alluvium for sand and gravel.

The debris-filled portion of the former quarry is in a depression about 40 feet below the surrounding topography. The outer portion of the former quarry area is surrounded by perimeter berms that control access and prevent surface water from entering the quarry. The bottom of the former quarry, including the landfill area, is covered with native soil up to several feet thick, with some construction debris visible.

The site is fenced along the southern boundary and is isolated from public access within a restricted portion of the China Lake Complex (Tetra Tech EM Inc. (TtEMI) and Morris Knudsen Corporation (MK) 2000).

Current and former employees at NAWS China Lake reported that up to five containers of Agent Orange, an herbicide, may have been disposed of at the landfill in the early 1970's; however, these reports have not been confirmed. No chlorinated pesticides, herbicides, dioxins, or furans that could potentially be indicative of the existence of Agent Orange were detected in groundwater samples.

2.3 COMMUNITY PARTICIPATION

The final RI and FS report was published in March 2000. The proposed plan was made available to the public in February 2001. These documents can be found in the Administrative Record file and the information repository maintained at the Ridgecrest Branch of the Kern County Public Library. The RI/FS was presented to the Remedial Advisory Board (RAB) April 14, 2000, which provided its comments on September 8, 2000. The notice of availability of the RI/FS and proposed plan was published in the Daily Independent and the News Review, and advertised on radio station KLOA/KRAJ during February 2001. A public comment period was held from February 27 to March 28, 2001. In addition, a public meeting was held on March 14, 2001 to present the proposed cleanup plan for Site 12 to the community. At this meeting, representatives of the Navy and the State were available to answer questions about the site and the proposed remedy. No questions or comments were received from any source during the public comment period. These activities fulfill the requirements of CERCLA Sections 113(k)(2)(B)(i-v) and 117(a)(2) and HSAA, HSC Section 25356.1.

2.4 SCOPE AND ROLE OF RESPONSE ACTION

The China Lake Complex covers more than 950 square miles, and a variety of activities involving the use of hazardous materials have occurred throughout its history. As a result, the Navy is currently investigating 80 sites under the CERCLA program and another 10 sites under the state underground storage tank (UST) petroleum program. The Navy's goal is to accelerate cleanup and closeout of sites as quickly as possible. To this end, the Navy is undertaking the following actions:

- Aggressively identifying and closing out sites that do not require action so that resources can be focused on cleaning up sites that pose a risk to human health and the environment
- Using its removal authority to address those sites that pose immediate risks
- Grouping sites that pose similar problems to be addressed together, thus accelerating the remedial response action process

In addition to the 80 CERCLA sites and 10 petroleum sites, 238 "points of interest" have been identified. POIs are areas where an environmental problem may exist, but no information is available to determine whether a problem actually exists, and, if it does, the nature and extent of the problem. Investigations are underway to determine which POIs require action. For those sites that require action, the Navy will identify the regulatory program [that is, CERCLA, Resource Conservation and Recovery Act (RCRA), or [UST] under which the site will be addressed.

2.5 SITE CHARACTERISTICS

Site 12 covers approximately 35 acres. The surface topography in the vicinity of Site 12 slopes gently to the northeast, with surface elevations ranging from 2,259 feet above mean sea level (msl) near the southwest corner of the site, to 2,285 feet above msl near the northeast corner of the site. The quarry is in a depression approximately 40 to 50 feet below the surrounding topography.

Site 12 is underlain by younger alluvium, lacustrine deposits, and older alluvium. The eastern third of the site is cut by the Quaternary-aged Little Lake fault zone. The younger alluvium, consisting of sand, silty sands, clay and minor amounts of gravel, ranges from 100 to 135 feet thick on the west side of the fault to 200 or more feet thick on the east side of the fault.

No surface water bodies are present at the site. Two water-bearing units have been identified at Site 12 and are referred to as the shallow groundwater zone and the 150-foot zone. The shallow water-bearing unit is present at a depth of 95 to 105 feet below ground surface (bgs). Shallow groundwater is perched

along the southern portion of the site and within the Little Lake Fault zone. Shallow groundwater movement is to the southwest on the west side of the Little Lake fault zone. In the 150-foot zone, the direction of groundwater flow is to the west (TtEMI and MK 2000).

The Navy began investigating Site 12 in 1987 to evaluate whether past activities had impacted soil or groundwater. Between 1987 and 1998, a series of five investigations, including a Phase I and II RI, were conducted. During the course of these investigations, landfill gas was surveyed, a total of 15 monitoring wells were installed to evaluate groundwater quality, and approximately 50 soil samples were collected. Groundwater and soil samples were generally analyzed for volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), metals, and radionuclides.

The landfill gas survey was conducted in 1992. The major gasses detected in wells were nitrogen and oxygen. Organic compounds measured as methane were not detected in any of the gas probe samples. The survey results indicated that (1) the landfill is old enough for most VOCs, if ever present, to have volatilized; (2) no VOCs present at the site are affecting the air passing across the landfill; and (3) no landfill gas is migrating beyond the landfill boundary (Engineering Science 1992).

The RI was scoped based on the premise that the U.S. Environmental Protection Agency's (EPA) guidance on presumptive remedies for landfills would be utilized at Site 12 (EPA 1993a, 1996). The EPA guidance states that characterization of a landfill's contents is not necessary or appropriate. The guidance indicates that site characterization should focus on characterizing areas where contaminant migration is suspected, such as landfill gas migration, leachate discharge areas, or areas where surface water runoff has caused erosion. Following EPA guidance, no soil or groundwater samples were collected from the landfill itself. Rather, the investigations focused on those areas surrounding the former landfill where contaminants may have migrated. Surface soil sampling was conducted at areas of potential contaminant accumulation due to wind or water transport, topographical depressions, or drainage. Groundwater samples were collected from areas upgradient and downgradient of the landfill to evaluate whether any contaminants had migrated from the landfill. In addition, surface and subsurface soil sampling and groundwater monitoring were conducted in the vicinity of the former asphalt batch plant (Figure 3).

With the exception of arsenic and iron, no significant concentrations of organic or inorganic chemicals were detected in soil or groundwater at Site 12. Detections of organic compounds are believed to be laboratory contaminants or artifacts of decontamination procedures. Acetone was the only organic detected in soil. The fact that it was detected only at shallow depths, where volatile compounds are not expected to persist, and its presence in quality control samples suggest it was a laboratory contaminant.

Similarly, the main organics detected in groundwater samples (acetone, carbon disulfide, and bis(2-ethylhexyl)phthalate) were also detected in quality control samples and source-blank waters.

Soil

Arsenic concentrations are within the range of naturally-occurring arsenic levels at NAWS China Lake and appear to be unrelated to site-specific activities at Site 12. Background arsenic soil concentrations at NAWS China Lake for all soil types generally range from 1.2 milligrams per kilogram (mg/kg) to 42.8 mg/kg. For alluvium at NAWS China Lake, soil similar to that at Site 12, the average background arsenic concentration was 2.1 mg/kg. The average concentration of arsenic detected at Site 12 is 4.6 mg/kg. The highest concentration detected was 23.9 mg/kg at a depth of 3.5 to 5 feet bgs. This maximum concentration is within the background range for NAWS China Lake, but slightly greater than the EPA Region 9 non-cancer preliminary remediation goal (PRG) for arsenic in residential soil of 21 mg/kg.

Iron was the only other inorganic detected in soil at concentrations above an EPA Region 9 PRG. It was detected at a concentration of 25,400 mg/kg at the same location as the elevated arsenic. The EPA Region 9 residential PRG for iron is 22,500 mg/kg, whereas the EPA Region 9 industrial PRG is 100,000 mg/kg. Other iron samples from Site 12 ranged from 7,630 mg/kg to 13,200 mg/kg. The single elevated detection appears to be an isolated occurrence.

Groundwater

With respect to groundwater, only arsenic was detected at levels of potential concern. However, arsenic chemical concentrations were below maximum contaminant levels (MCL) in all groundwater samples collected from monitoring wells in 1997 and 1998. The MCL for arsenic is 50 micrograms per liter ($\mu\text{g/L}$); the highest concentration of arsenic detected in groundwater from a monitoring well is 35.4 $\mu\text{g/L}$ in shallow groundwater. Figure 4 depicts the inorganic sampling results from 1998.

In summary, the extensive soil and groundwater sampling and analysis conducted at Site 12 indicate there have been no releases of hazardous substances to the environment from the asphalt batch plant or the landfill. Arsenic concentrations detected in soil and groundwater are consistent with naturally-occurring arsenic. In addition, landfill gas survey results from 1992 demonstrate that there is no gas production at or migration from the site. Therefore, the portion of the presumptive remedy regarding collection and treatment is not applicable because of the lack of gas to treat.

2.6 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

NAWS China Lake is an active Naval air weapons facility. Site 12 is currently not used as part of any naval operations at the installation. The installation's land use management plan does not contain a planned future use for Site 12. If used, Site 12 is likely to be used for military or industrial purposes. Site 12 is located in a restricted area of the China Lake Complex. Therefore, access is limited to personnel working on the installation. Access to the landfill is further restricted by perimeter berms and fencing.

There is no surface water at the site. Shallow groundwater underlying Site 12 is not currently used for any purpose. The data collected at Site 12 indicate that shallow groundwater underlying the site is discontinuous. Because the shallow groundwater is so limited, it is not likely to be used in the future by the Navy. The deeper 150-foot zone of groundwater may be hydraulically connected to the deep regional aquifer that is used for water supply (TtEMI and MK 2000). A municipal supply well field is located approximately 1 mile to the southwest of Site 12.

Water used at the NAWS China Lake Complex is from deep wells in the unconfined aquifer of the Indian Wells Valley. The wells are generally screened between 200 and 700 feet bgs.

2.7 SUMMARY OF SITE RISKS

The results of the Phase II RI were used in the baseline screening level human health and ecological risk assessments. As summarized below, the risks from chemicals in soil are acceptable. Nevertheless, an unquantified potential future risk may exist if erosion from surface water runoff uncovers landfill debris and site workers or ecological receptors come into contact with the debris.

Human Health Risk Assessment Results

A baseline screening level human health risk assessment was conducted which involved identifying chemicals of potential concern and exposure pathways, and calculating a potential risk by comparing chemical concentrations to EPA Region 9 PRGs.

Identification of Chemicals of Potential Concern

With the exception of iron and arsenic, all other chemicals were either not detected, or were not detected at concentrations exceeding their respective EPA Region 9 PRGs in soil samples. Only a single elevated reading of iron (maximum of 25,400 mg/kg) was detected; the concentration exceeded the residential PRG of 22,500 mg/kg, but fell well below the industrial PRG of 100,000 mg/kg. Because of the isolated occurrence of the elevated level of iron, it was not retained as a chemical of potential concern (COPC).

Arsenic was detected in subsurface soil at a maximum concentration of 23.9 mg/kg. The 95 percent upper confidence limit (UCL) for arsenic concentrations in subsurface soil was 6.75 mg/kg. Although 23.9 mg/kg concentration is within the background range for NAWS China Lake, it is greater than typical background concentrations for younger alluvium, as well as the EPA Region 9 industrial cancer risk PRG of 3.0 mg/kg. Several soil samples also had arsenic present at concentrations exceeding the residential cancer risk PRG of 0.38 mg/kg. Given these factors, arsenic was retained as the sole COPC for the risk assessment.

Identification of Exposure Pathways

Soil: Site 12 is located within an active military base in a restricted area. For this reason, the most likely future users are site workers. Residential development at Site 12 is highly unlikely because it is in the restricted area of the installation. For this reason, residential use was not considered further in the risk assessment. Only oral, dermal contact, and inhalation by workers was considered for soil.

Groundwater: Shallow groundwater is not currently used. Shallow groundwater at Site 12 and within the Little Lake Fault zone is laterally discontinuous, making it unlikely to be used in the future. No elevated COPCs were detected in groundwater samples collected from the 150-foot zone. Because the groundwater exposure pathways are incomplete, they were not evaluated in the risk assessment.

The only potentially complete exposure pathway identified is future worker oral and dermal contact with soils and inhalation of COPCs attached to particulates suspended in air.

Risk Characterization

The potential risks were developed based on a comparison with the EPA Region 9 PRG for arsenic at industrial and residential sites. Using this approach, the potential risk to a current or future site worker is 2.0×10^{-6} . This concentration is at the low end of EPA's risk range of 10^{-4} to 10^{-6} for determining when an action might be appropriate.

Ecological Risk Evaluation Results

The objective of the baseline screening ecological risk evaluation was to assess the potential for adverse ecological effects that are occurring or may occur in site plants and animals as a result of exposure to one or more stressors. At Site 12, the only identified stressor was naturally-occurring arsenic.

Ecological effects have not been observed at Site 12. Based on the literature, the evidence of carcinogenicity in animals is inconclusive. Microorganisms' exposure to arsenic produces a decline in growth and metabolic rates. The more tolerant species withstand arsenic levels up to 1,000 mg/kg, whereas the most sensitive species succumb to levels less than 375 mg/kg (Canada National Research Council 1978). The highest arsenic concentration in soil samples collected at Site 12 was 23.9 mg/kg.

Therefore, exposure of biota at Site 12 to arsenic is considered unlikely to result in significant mortality or adverse reproductive rates. The highest concentration of arsenic in soil was found in a sample collected at 3.5 to 5 feet bgs, with the potential to affect only deep root systems. With respect to arsenic in groundwater, there is no complete exposure pathway by which wildlife could be exposed. In addition, a biological opinion was rendered that no sensitive habitat exists at the site to support the desert tortoise or other sensitive species.

Risk Assessment Summary

Currently, Site 12 does not pose a risk to human health and the environment. However, continued erosion of the landfill could result in uncovering and mobilization of landfill contents. Site workers could thus come into contact with landfill debris. There are no complete exposure pathways for groundwater, but erosion of the landfill cap could allow infiltration that might affect groundwater. For these reasons, the Navy concluded that remedial alternatives should be considered for the former Site 12 landfill.

2.8 REMEDIAL ACTION OBJECTIVES

As explained in Section 2.7, Site 12 does not pose a current risk to human or ecological receptors. However, the existing cover material at Site 12 is susceptible to erosion and degradation from rain and subsequent surface runoff. Erosion may uncover landfill debris that could cause a threat to human health or the environment. For this reason, the remedial action objective for Site 12 is to control surface water drainage and runoff that could cause erosion, which, in turn, could uncover landfill contents or allow infiltration that could present a risk to human health and the environment.

2.9 DESCRIPTION OF ALTERNATIVES

The development of alternatives was guided by prior EPA experience at municipal and military landfills. "The Presumptive Remedy for CERCLA Municipal Landfill Sites" (EPA 1993a), "Presumptive Remedy: Policy and Procedures" (EPA 1993b), and "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills" (EPA 1996) describe certain preferred technologies or presumptive remedies for landfills. Use of these technologies is designed to expedite the investigation and selection of remedial alternatives. "Feasibility Study Analysis for CERCLA Municipal Landfill Sites" (EPA 1994) provides the technical basis for eliminating initial identification and screening of site-specific alternatives and limiting the FS analysis to only the presumptive remedy technologies. These documents are part of the administrative record for Site 12. The six-step decision framework to determine applicability of the presumptive remedy to military landfills was used at Site 12 (EPA 1996). The presumptive remedy was determined to be the appropriate choice for Site 12. The presumptive remedy approach allows the FS to focus on those technologies that have proven to be effective in the past. The basis of the presumptive remedy for landfill sites is containment.

The four alternatives considered in the FS were various containment alternatives. The four alternatives are as follows:

- Alternative 1: No action
- Alternative 2: Drainage controls, native soil cover improvements, site boundary controls, land-use controls
- Alternative 3: Native soil cover, drainage controls, site boundary controls, land-use controls
- Alternative 4: Multilayer soil cover, drainage controls, site boundary controls, land-use controls

Each of these alternatives is described in more detail below.

2.9.1 Alternative 1: No Action

Under Alternative 1, no action would be taken at Site 12. The current site boundary controls, consisting of fences, warning signs, and perimeter berms, would continue to be maintained.

No applicable or relevant and appropriate requirements (ARAR) apply to this alternative. The no-action alternative would not meet the remedial action objective (RAO) of controlling surface water runoff and erosion. However, as required by the NCP, the no-action alternative is retained as a baseline against which to compare other alternatives.

The estimated present worth cost for Alternative 1 is \$25,000. This cost is for site inspections, maintenance and reporting.

2.9.2 Alternative 2: Drainage Controls, Site Boundary Controls, and Land-use Controls

Alternative 2 consists of the following components:

- Intercepting drainage from portions of the abandoned quarry at elevations higher than the landfill and redirecting the drainage to existing drainage ways
- Regrading the landfill cover to redirect drainage into a lined evaporation pond
- Repairing the existing cover as necessary
- Continued maintenance and improvements of the fence, warning signs, and berms around the landfill
- Restrictions in the installation land-use management plan preventing activities that would disturb the integrity of the cover

The main components of this alternative are repairing and regrading the existing soil cover to develop drainage characteristics that will control surface water transport of existing cover material and surface water accumulation, and prevent exhumation of landfill contents. Native soils would be contoured to repair areas in the existing cover where surface irregularities exist. It is likely that soil from other areas of the China Lake Complex would be used for the repairs. The soil may include soil stockpiled from excavations at three nearby POIs (151, 178, and 179); the stockpiled soil would be sampled and analyzed to determine whether it could be used for the cover repairs. If no on-site source of soil is located, soil from off-site sources would be used. In addition, drainage controls would be implemented to minimize drainage into, and ponding of water onto, low areas of the landfill. The controls would include modifying the top of the quarry side slopes to redirect surface runoff to the surrounding desert.

There are no chemical- or location-specific ARARs that apply to this alternative. The only action-specific ARARs are the dust control requirements in Kern County Air Pollution Control District (APCD) Regulation 402, the grading requirements in Title 27 CCR, Sections 21090(b)(1) and 21150(a), and continued maintenance of landfill controls in 27 CCR Section 21090(c).

- Kern County APCD Regulation 402 requires that control measures be undertaken to minimize fugitive dust emissions.
- Section 21090(b)(1) of CCR Title 27 contains grading requirements for covers. It specifies a slope of at least 3 percent, but allows for slopes to be steeper or flatter, if technically justified.
- Section 21150(a) contains drainage and erosion control requirements.
- Section 21090(c) requires continued maintenance of the landfill controls.

None of the other requirements for landfill closure in 27 CCR are ARARs because the landfill meets the definition of a closed, abandoned, or inactive landfill under the regulations. Furthermore, the Integrated Waste Management Board's 1993 Local Enforcement Advisory indicates that landfills closed prior to 1980 need to comply with the previous Title 14 CCR regulations on cover, grading, leachate and landfill gas control, and site maintenance. As explained above, the cover requirement has been met; the site is covered with at least 2 feet of soil in most areas. Consequently, the cover requirements in Title 27 are not considered ARARs for this action. Moreover, the RI concluded that neither landfill gas nor leachate control are needed.

In addition to the drainage controls, non-engineering controls would be implemented to limit access to Site 12. The existing fencing, warning signs, and berms would be maintained and upgraded as necessary and land-use controls would be instituted. Because NAWS China Lake is an active installation, the land-use controls would consist of notations in the installation's land-use management plan. Specifically, the land-use management plan would prohibit activities that would interfere or impair the landfill cover or the surface drainage controls.

The estimated present-worth cost for Alternative 2 is \$479,000.

2.9.3 Alternative 3: Single-layer Soil Cover, Site Boundary and Land-use Controls

Under Alternative 3, a single-layer soil cover would be constructed at the landfill; the other components of the alternative would be the same as Alternative 2. The main components of Alternative 3 are:

- Drainage improvements

- Installing a single-layer soil cover on the landfill
- Continued maintenance and improvements of the fence, warning signs, and berms around the landfill
- Restrictions in the installation land-use management plan prohibiting activities that would impair the integrity of the cover

In some areas of the landfill, the cover would be up to 10 feet thick because of the currently existing landfill depressions and the need to control drainage. Approximately 135,000 cubic yards of soil would be needed for the cover. Soil stockpiled from excavations at three nearby POIs (151, 178, and 179) would be sampled and analyzed and, based on the results, possibly used as part of the cover material. Otherwise, soil from other parts of NAWS China Lake, or from off-site sources would be used.

In addition to the ARARs cited under Alternative 2, 27 CCR, Section 20080(g), which allows an engineered alternative to the Title 27 Section 21090(a) prescriptive requirements, is considered an ARAR.

Assuming the existence of an on-site source for cover material, the estimated present-worth cost for Alternative 3 is \$1,962,500.

2.9.4 Alternative 4: Multilayer Soil Cover, Site Boundary and Land-use Controls

Alternative 4 is similar to Alternative 3, except that a multi-layer, low-permeability soil cover, rather than a single-layer soil cover, would be installed at the Site 12 landfill. All other components of the two alternatives are the same. Therefore, the major components are:

- Drainage improvements
- Installing a multi-layer cover on the landfill
- Continued maintenance and improvements of the fence, warning signs, and berms around the landfill
- Restrictions in the installation land use management plan prohibiting activities that would impair the integrity of the cover

Under Alternative 4, the landfill cover would consist of three layers: a 2-foot-thick foundation layer, a 1-foot-thick barrier layer or engineered equivalent, and a 1-foot-thick vegetative/erosion control layer. The foundation layer would consist of existing native soil. The barrier layer would be a low-permeability

layer to reduce infiltration of water, prevent contact with landfill debris, and control erosion. The barrier layer could be one of several materials, such as native clay, native soil processed with mineral clay, a geosynthetic clay liner, or a flexible synthetic membrane liner. A vegetative layer or a drainage layer would overlie the barrier layer.

The Alternative 4 landfill cover would be constructed in accordance with the 27 CCR Section 21090 prescriptive requirements. These requirements specify design criteria for the layers of the cover. The ARARs identified under Alternative 2 would also be ARARs.

Assuming 5 years of monitoring and an on-site source for cover material, the estimated present-worth cost for Alternative 4 is \$2,481,900.

2.10 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The following sections summarize the comparative analysis of alternatives for Site 12 against the nine NCP evaluation criteria. The nine criteria are as follows:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements
- Long-term effectiveness and permanence
- Short-term effectiveness
- Reduction of toxicity, mobility, or volume through treatment
- Implementability
- Cost
- State acceptance
- Community acceptance

The first two criteria are threshold criteria that must be satisfied by the alternative.

Overall Protection of Human Health and the Environment

Overall protection of human health and the environmental addresses whether each alternative provide adequate protection human health and the environmental and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, or institutional controls.

All the alternatives, except the no-action alternative, are protective of human health and the environment by controlling site risks with containment actions and land-use controls. While the no-action alternative, Alternative 1, is currently protective, it does not prevent erosion of the landfill cover and subsequent exposure of landfill contents.

Compliance with Applicable or Relevant and Appropriate Requirements

Section 121(d) of CERCLA and NCP Section 300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally-applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations (which are collectively referred to as ARARs), unless such ARARs are waived under CERCLA Section 121(d)(4).

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA sites. Only state standards that are identified in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only state standards that are identified in a timely manner and that are more stringent than federal requirements may be relevant and appropriate.

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or regulations or provides a basis for invoking a waiver.

There are no chemical-or location-specific ARARs for Site 12. Alternatives 2, 3, and 4 will satisfy their respective action-specific ARARs. Common to all three alternatives is the requirement in Kern County APCD Regulation 402 concerning control of dust during construction activities and State Water Resources Control Board (SWRCB) order 99-08-DWQ concerning storm water pollution prevention plans (SWPPP) for construction activities disturbing 5 acres or more. In addition, various components of Title 27 CCR concerning design criteria for landfill closure are ARARs for Alternatives 2, 3, and 4. Each alternative can be designed to meet the Title 27 requirements.

Long-term Effectiveness and Permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk that will remain on site following remediation and the adequacy and reliability of controls.

Under all the alternatives, landfill debris would remain at Site 12, so there is some residual risk to human health and the environment. However, under Alternatives 2, 3, and 4, the residual risk is equally minimal because the drainage controls would minimize future erosion and exhumation of landfill contents. In addition, the base master plan prohibitions and the site boundary controls included in each alternative will minimize human access to the site.

Short-term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community and the environment during construction and operation of the remedy until cleanup levels are achieved. This criterion also considers the time needed to achieve the RAOs.

Alternative 1, no action, has no impacts on workers, the community or the environment during implementation and therefore is highly effective in the short term. Of the other three alternatives, Alternative 2 would have the highest degree of short-term effectiveness because it causes no disruption to the community and minimal worker exposure and disruption to the environment. It would also take less time to implement than Alternatives 3 and 4.

Reduction of Toxicity, Mobility, or Volume through Treatment

Reduction of toxicity, mobility or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

This criterion is not pertinent to the landfill presumptive remedy of containment. As outlined in EPA's presumptive remedy guidance, treatment is not considered a viable option for landfills given the volume and heterogeneity of landfill contents (EPA 1993a). None of the alternatives considered for Site 12 involve treatment.

Implementability

The implementability criterion addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental agencies are considered.

Alternative 1, no action, would be the easiest to implement because it requires no construction. Alternative 2 would also be relatively easy to implement. Both Alternatives 3 and 4 would be harder to implement than Alternative 2 because they require installation of new soil covers. Alternative 4 would be the most difficult to implement because of the need for a significantly larger volume of materials, workers with the specialized training to install the liners, and a greater area requiring revegetation.

Cost

This criterion compares the present worth costs of each of the alternatives.

Alternative 1 has the lowest costs, and the costs increase with each alternative. The present-worth costs of the alternatives range from \$25,000 for Alternative 1 to \$2,481,900 for Alternative 4.

State Acceptance

This criterion assesses whether the state supports, objects to, or has reservations about the preferred alternative.

The state concurs that Alternative 2 is the most effective remedy for Site 12. The state believes no action is not protective because of the possible impacts of erosion on the landfill. The state also agrees that capping the landfill is unnecessary, given that the landfill is currently covered with an average of 2 feet of soil and the data collected during the RI indicate that there have been no releases from the landfill.

Community Acceptance

This criterion assesses whether the community supports, objects to, or has reservations about the preferred alternative.

The community concurs that Alternative 2 is the most effective remedy for Site 12. The community believes no action is not protective because of the possible impacts of erosion on the landfill. The community also agrees that capping the landfill is unnecessary, given that the landfill is currently covered with an average of 2 feet of soil and the data collected during the RI indicate that there have been no releases from the landfill.

2.11 THE SELECTED REMEDY

This section describes the rationale for the selected remedy, description of the selected, and its associated costs, and the expected outcome.

2.11.1 Rationale for the Selected Remedy

The primary concern with the Site 12 landfill is that continued erosion of the landfill from surface water runoff could uncover landfill debris, and consequently, expose human or ecological receptors to hazardous substances that may be present in the landfill. The selected remedy is designed to address this concern by re-directing drainage away from the landfill. In addition, the non-engineering controls will provide additional assurance that human exposure will be minimized. More extensive actions, such as a new soil cover, are not warranted by site conditions or by regulation given the existing soil cover and the absence of landfill gas, contaminant hot spots, leachate, or impacted groundwater.

2.11.2 Description of the Selected Remedy

The selected remedy for the Site 12 landfill consists of the following components:

- **Repairing the existing cover as necessary:** In some areas of the Site 12 landfill, construction debris is exposed through the soil cover. These areas would be covered using nearby native soil or soil from nearby POIs, if available.
- **Regrading the landfill cover to redirect drainage:** The cover would be regraded as necessary to redirect surface drainage away from the cover of the landfill and into drainage swales adjacent to but off of the cover.
- **Intercepting drainage from higher elevation portions of the abandoned quarry:** Drainage from areas at elevations higher than the landfill will be redirected into existing drainage ways east of Site 12.

- **Continued maintenance and improvements of the fence, warning signs, and berms around the landfill:** The fence along the southern portion of the landfill would be retained. Additional warning signs would also be installed around the landfill perimeter.
- **Restrictions in the installation land-use management plan:** The base master plan would prohibit activities that could impair the cover's integrity.

2.11.3 Summary of Estimated Remedy Costs

The estimated present-worth cost for Alternative 2 is \$479,000.

Table 1 contains a breakdown of the cost estimate. The information in Table 1 is based on the best available information regarding the anticipated scope of the selected remedy. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design phase of the selected remedy. Major changes may be documented in the form of a memorandum in the Administrative Record file, an explanation of significant differences (ESD), or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

2.11.4 Expected Outcomes of Selected Remedy

The selected remedy will minimize future erosion of the landfill surface as well as infiltration of surface water runoff that could potentially mobilize the landfill contents. The selected remedy will also eliminate human exposure pathways.

2.12 PRINCIPAL THREAT WASTES

The NCP establishes an expectation that treatment will be used to address the principal threats posed by a site wherever practicable (NCP, 40 Code of Federal Regulations (CFR) Section 300.430(a)(1)(ii)(A)). Non-principal threat wastes are those source materials that generally can be reliably contained and that would present only a low risk in the event of exposure. At NAWS China Lake Site 12, no principal threat wastes have been identified. The RI data indicate that, in the 20 years since they were closed, there have been no releases of hazardous substances from the former asphalt plant and landfill. In addition, the large volume and heterogeneous nature of a landfill make treatment impracticable. Therefore, to the extent that source materials exist at the landfill, they will be reliably contained by repairing and regrading the existing soil cover.

2.13 STATUTORY DETERMINATIONS

Under CERCLA Section 121(d) and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a waiver is justified), are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against off-site disposal of untreated wastes. The following sections discuss how the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The selected remedy, Alternative 2, will protect human health and the environment by controlling erosion to ensure that human and ecological receptors are not exposed to landfill debris. In addition, the site boundary and institutional controls will limit human access to the site, thereby minimizing the potential for exposure to hazardous substances that may be present in the landfill.

Compliance with Applicable or Relevant and Appropriate Requirements

There are no chemical-or location-specific ARARs that apply to the selected remedy. The selected remedy will be designed to comply with its action-specific ARARs. Those ARARs are as follows:

- Kern County APCD Rule 402: This regulation requires the use of reasonably available control technologies to minimize fugitive dust emissions from different sources, including construction and earth moving activities.
- Title 27 CCR Section 21090(b)(1): This regulation contains grading requirements for landfill covers to prevent ponding, erosion, and run on. The regulations require a minimum 3 percent slope, but alternate slopes are also allowed.
- Title 27 CCR Section 21090(c): This regulation requires continued maintenance of landfill controls, including maintenance of the final cover and prevention of erosion and related damage of the final cover due to drainage.
- Title 27 CCR Section 21150(a): This regulation requires drainage and erosion controls designed and maintained to, among other things, prevent exposure of waste.
- State Water Resources Control Board (SWRCB) Order 99-08-DWQ: This ARAR is applicable to dischargers of pollutants to waters of the US from construction activity that disturbs five acres or more. The requirements of dischargers include 1) developing a SWPPP specifying Best Management Practices (BMPs) to prevent construction pollutants from contacting storm water and keeping all products of erosion from moving off site into receiving waters, 2) eliminate or reduce nonstorm water discharges to storm sewer systems and other waters of the nation, and 3) perform inspections of all BMPs.

2.14 COST EFFECTIVENESS

The selected remedy is cost effective and represents a reasonable value for the money to be spent. In making this determination, the following definition was used: "A remedy shall be cost effective if its costs are proportional to overall effectiveness" (NCP, 40 CFR, Section 300.430[f][1][ii][D]).

The estimated present-worth cost of the selected remedy is between \$479,000. Balancing the high potential for erosion to expose landfill debris against the low potential for releases of hazardous substances from the landfill, the Navy has determined that these costs are appropriate and that the selected remedy is a cost-effective approach for minimizing potential future risks.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy utilizes permanent solutions to the maximum extent practicable. The selected remedy is expected to be permanent and effective over the long term as long as routine maintenance of the site boundary controls, the cover, and the erosion control features is performed and land-use restrictions are enforced.

Preference for Treatment as a Principal Element

The selected remedy does not meet the statutory preference for treatment. The NCP, 40 CFR, Section 300.430(a)(1)(iii)(B), contains EPA's expectation that engineering controls, such as containment, be used for waste that poses a relatively low long-term threat or where treatment is impracticable. EPA's landfill presumptive remedy guidance also supports use of containment over treatment for landfills given the heterogeneity of the waste and the low threats they pose. The size of the landfill and the fact that there are no on-site hot spots that represent the major sources of contamination preclude a treatment remedy. Given these considerations, the Navy determined that treatment was not an appropriate alternative for Site 12.

2.15 5-YEAR REVIEW REQUIREMENTS AND GROUNDWATER MONITORING PLAN

Because the selected remedy will result in debris that may contain hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the remedy continues to be protective of human health and the environment.

With respect to groundwater monitoring, the Navy has already met the statutory requirements of 27 CCR, Section 20080(g) in that a groundwater monitoring program has been implemented at Site 12 in the RI process and no threat to groundwater quality has been found. Although, not driven by a regulatory requirement, Navy will develop a groundwater monitoring plan associated with its 5-year review requirement under CERCLA to ensure the remedy continues to be protective of human health and the environment. The details of the monitoring program will be developed in cooperation with DTSC and RWQCB when Navy prepares the 5-year review monitoring plan.

2.16 DOCUMENTATION OF SIGNIFICANT CHANGES

The proposed plan for Site 12 at NAWS China Lake was released for public comment in February 2001. The proposed plan identified Alternative 2, drainage controls, site boundary and land use controls as the preferred alternative for the Site 12 landfill. It was determined that no significant changes to the remedy, as originally identified in the proposed plan, were necessary or appropriate.

3.0 RESPONSIVENESS SUMMARY

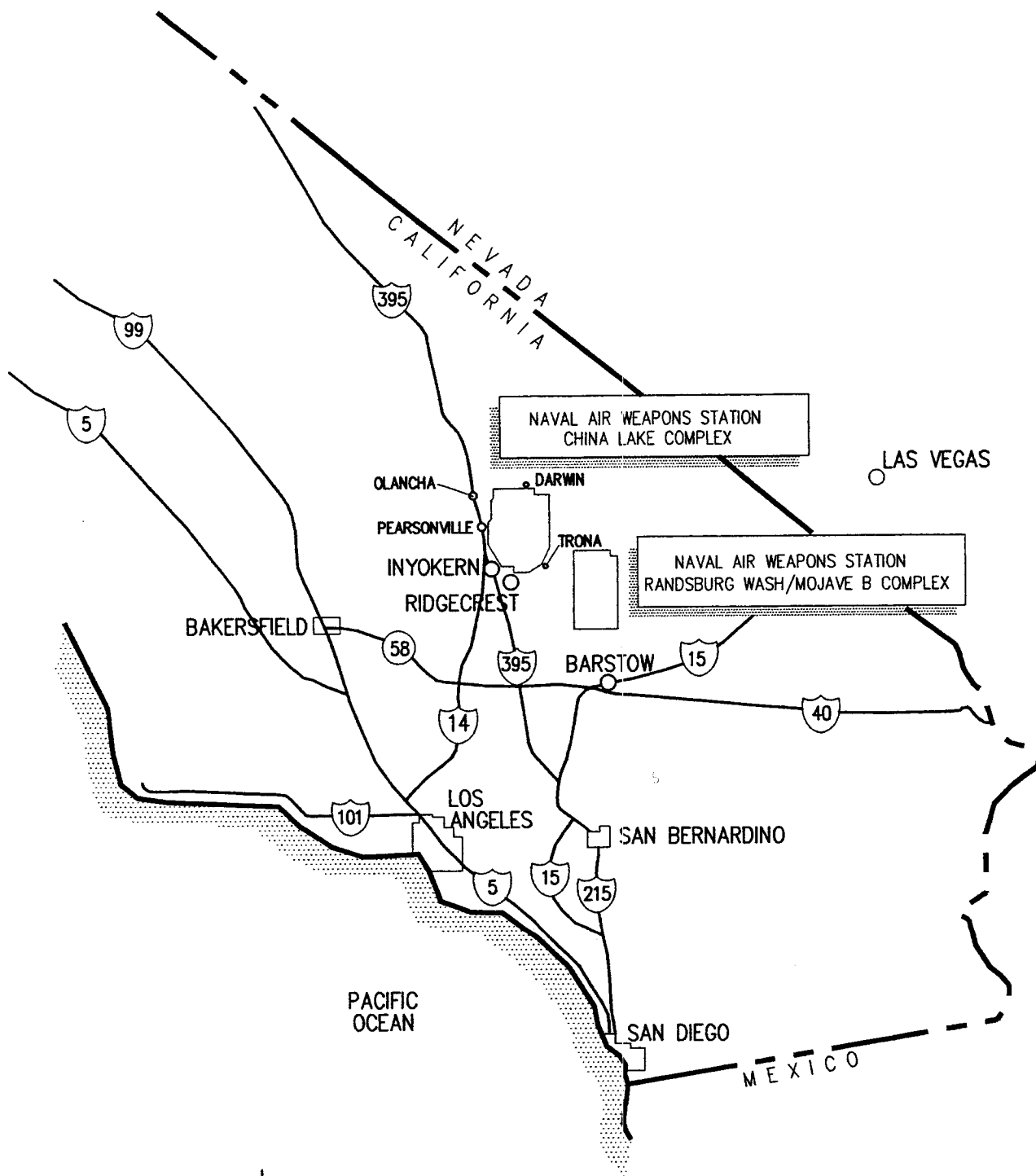
As previously discussed in Section 2.3, documents leading to the decisions presented in this ROD have been released to the public for review. The main documents were made available to the public in the information repository maintained at the Ridgecrest Branch of the Kern County Public Library. The public was informed of the availability of the complete Administrative Record, which is also maintained at the Ridgecrest Branch of the Kern County Public Library. Notices of availability were published in local newspapers, as were notices of public meetings and public review and comment periods. No questions or comments were received from any source during the public comment period. Therefore, a responsiveness summary is not required and is not part of the Administrative Record. The decision document presents the selected remedy for NAWS China Lake Site 12, chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the NCP. The decision for this site is based on the Administrative Record.

State comments were provided in a letter dated May 7, 2001. Responses to state comments are included in Appendix C.

4.0 REFERENCES

- Canada National Research Council. 1978. "Effects of Arsenic in the Canadian Environment." NRCC No. 15391.
- Engineering-Science, Inc. 1992. Air Quality Solid Waste Assessment Test Report for the SNORT Road Landfill, Naval Weapons Center China Lake, California. April.
- Tetra Tech EM Inc. (TtEMI) and Morris Knudsen Corporation. 2000. Final Phase II Remedial Investigation/Feasibility Study Report, Sites 12 and 22. March.
- U.S. Environmental Protection Agency (EPA). 1993a. "Presumptive Remedy for CERCLA Municipal Landfill Sites." Office of Solid Waste and Emergency Response. EPA 540-F-93-035. September.
- EPA. 1993b. "Presumptive Remedy: Policy and Procedures." Office of Solid Waste and Emergency Response. EPA 540-F-93-047. September.
- EPA. 1994. "Feasibility Study Analysis for CERCLA Municipal Landfill Sites." OSWER Directive 9356.0-03, EPA/540/R-94/081. August
- EPA. 1996. "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills," Directive No. 9355.0-67FS, EPA/540/F-96/020. December.

FIGURES

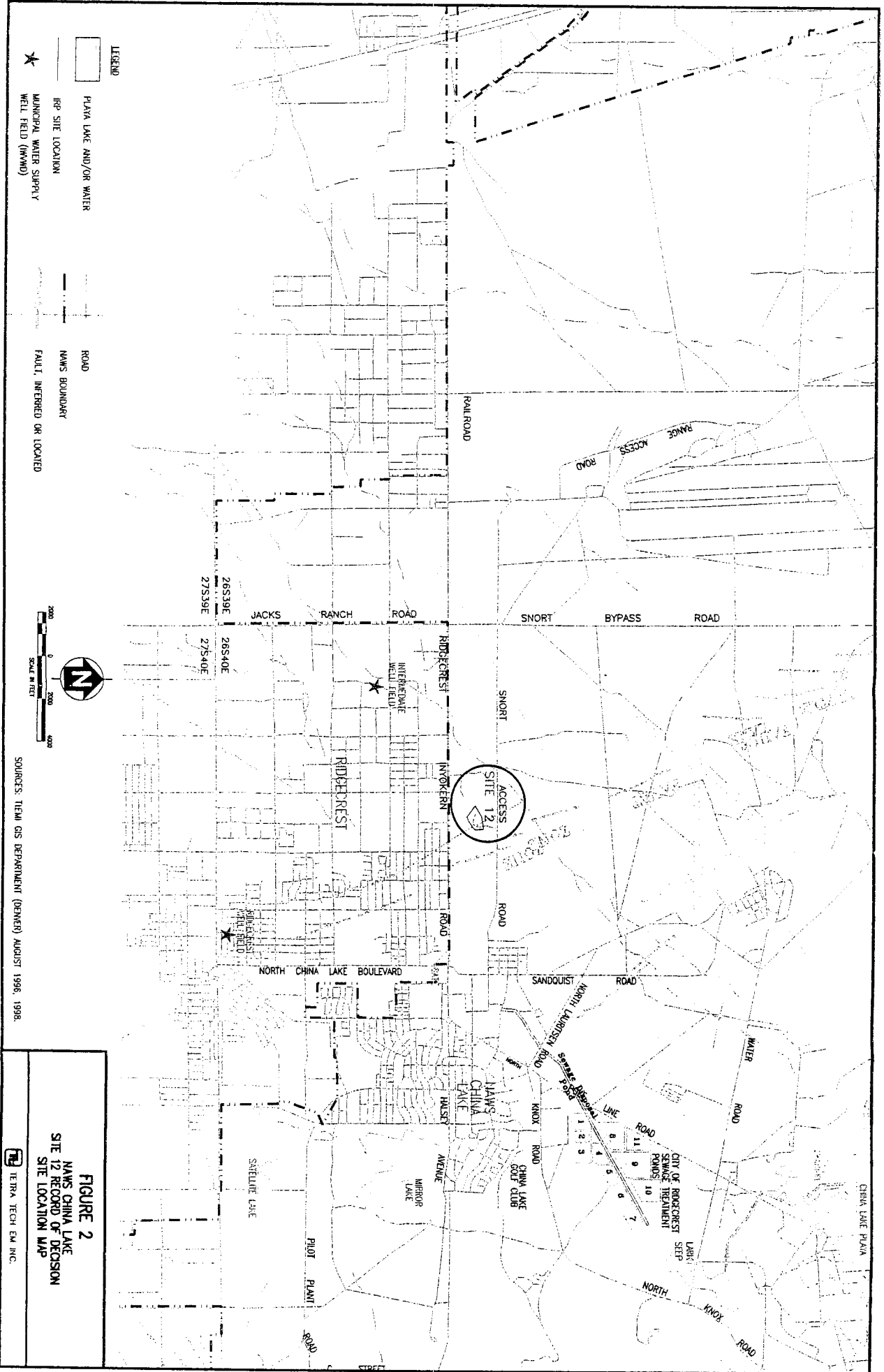


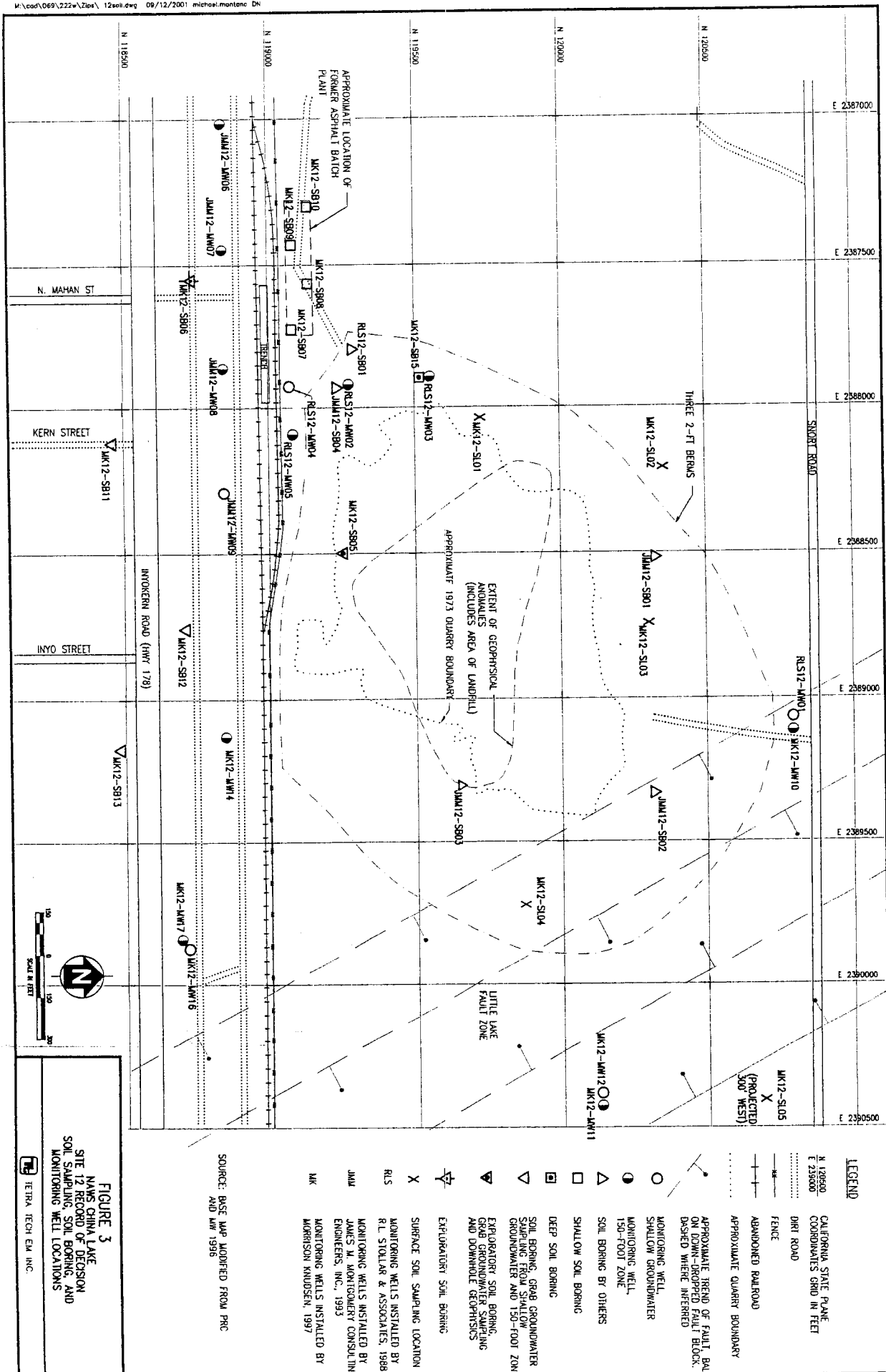
NOT TO SCALE

FIGURE 1
NAWS CHINA LAKE
SITE 12 RECORD OF DECISION
FACILITY LOCATION MAP

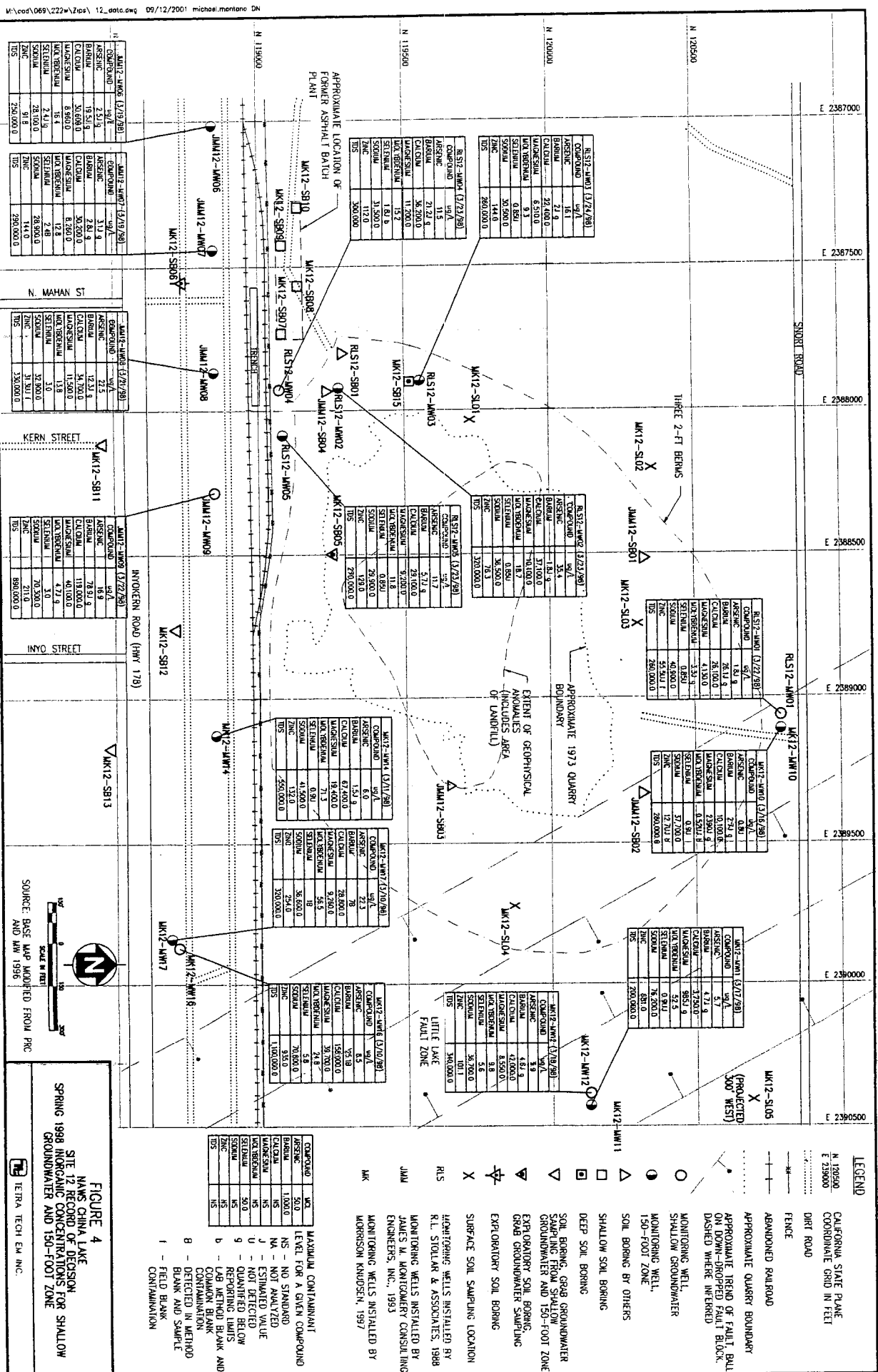


TETRA TECH EM INC.





SOURCE: BASE MAP MODIFIED FROM PRC
AND MW 1996



TABLES

TABLE 1

**COST SUMMARY FOR THE SELECTED REMEDY
NAWS CHINA LAKE SITE 12**

Remedy Component	Estimated Cost
Design and cover improvements	\$200,000
Landfill surface drainage modifications	\$250,000
Site inspections, maintenance, and reporting	\$29,000
Total	\$479,000

APPENDIX A
STATEMENT OF REASONS

**STATEMENT OF REASONS
NAVAL AIR WEAPONS STATION CHINA LAKE SITE 12
RECORD OF DECISION/REMEDIAL ACTION PLAN**

Pursuant to California Health and Safety Code (HSC) Section 25356.1, the U.S. Department of the Navy has prepared this statement of reasons. This statement of reasons is part of the attached decision document for Site 12 at Naval Air Weapons Station (NAWS) China Lake.

The record of decision/remedial action plan (ROD/RAP) summarizes the environmental investigations and the potential risks to human health and the environment posed by Site 12. Because of the potential exposure to landfill contents from erosion of the soil cover, the ROD/RAP selects a combination of surface drainage modifications, site boundary and institutional controls as the final remedy for the site. Although, not driven by a regulatory requirement, Navy will develop a groundwater monitoring plan associated with its 5-year review requirement in order to be more protective of the Indian Wells Valley Water District well field adjacent to the site.

The attached ROD/RAP complies with the law as specified in California HSC Section 25356.1. Section 25356.1(c) requires that RAPs "include a statement of reasons setting forth the basis for the removal and remedial actions selected." The statement of reasons "shall also include an evaluation of the consistency of the removal and remedial actions proposed by the plan with the federal regulations and factors specific in subdivision (d)." The remedial action is consistent with the Comprehensive Environmental Response, Compensation and Liability Act and its implementing regulations, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Subdivision (d) of HSC Section 25356.1 specifies six factors against which remedial alternatives in the ROD/RAP must be evaluated. The six factors are summarized as follows.

1. Health and Safety Risks - Section 25356.1(d)(1)

There are no currently quantified risks from Site 12. The only chemical of potential concern identified during the remedial investigation was arsenic, which is attributable to naturally-occurring conditions rather than activities at Site 12. However, a potentially unquantified risk may exist to human health and the environment from exposure to landfill debris as a result of erosion of the landfill cover.

2. Beneficial Uses of Site Resources - Section 25356.1(d)(2)

Site 12 is currently not actively used by the Navy. If used in the future, it would be used for industrial or military operations.

Shallow groundwater at the site is limited and contains elevated concentrations of naturally-occurring arsenic. For these reasons, it is not likely to be used for any purpose. Deeper groundwater pumped downgradient of the site is used for municipal supply.

3. Effect of the Remedial Actions on Groundwater Resources - Section 25356.1(d)(3)

Groundwater has not been impacted by releases of hazardous substances from Site 12. As the shallow groundwater is unusable irrespective of the proposed institutional controls, these actions will not impact shallow groundwater resources at the site. The remedial actions will have no impact on deeper groundwater at Site 12.

4. Site-specific Characteristics - Section 25356.1(d)(4)

Site 12 is an abandoned quarry including the site of a former asphalt batch plant and a closed 15-acre landfill. The landfill received primarily solid waste and possibly some chemicals and ordnance. There are no known hot spots of contamination within the landfill. Further, the soil and groundwater investigations indicate that neither the former plant nor the landfill (outside its boundaries) have released hazardous substances into the environment. However, surface drainage has caused, and may continue to cause, erosion of the cover, with the possibility of uncovering landfill debris.

5. Cost Effectiveness of Alternative Remedial Action Measures - Section 25356.1(d)(5)

Based on the comparative analysis of alternatives in the ROD/RAP, the selected remedy is the most cost-effective means of protecting human health and the environment. The other active remedial alternatives including placement of a new cover on the landfill, which is unnecessary and not cost effective given the existing cover and absence of landfill gas, hot spots, leachate, and groundwater impacts.

6. Potential Environmental Impacts of Remedial Actions - Section 25356.1(d)(6)

The selected remedial action will not have significant potential environmental impacts. The remedy involves repairing the cap and redirecting surface water drainage, which, compared to recapping the entire landfill, should be a minimal, short-term impact.

A state RAP must also include a "nonbinding preliminary allocation of responsibility among all identifiable potentially responsible parties at a particular site, including those parties which may have been released, or may otherwise be immune, from liability" (HSC Section 25356.1(e)). The Navy is responsible for continued maintenance of landfill controls and any contaminant release that might be detected by future groundwater monitoring.

APPENDIX B
ADMINISTRATIVE RECORD INDEX

CHINA LAKE NWS

ADMINISTRATIVE RECORD FILE INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

SITE 12

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Subject	Classification	Keywords	Sites	Location Box No.
Record Type	Contrl./Guid. No.	Record Date	Author					
Approx. # Pages	EPA Cat. #	CTO No.	Recipient Affil.					
N60530 / 000016	02-24-1998	11-01-1984	NEESA, PORT	INITIAL ASSESSMENT STUDY; NEESA	ADMIN RECORD	GW	001	NAWS CHINA
NONE	NONE	NONE	HUENEME	13-060		IAS	002	LAKE
RPT	01.1		WESTEC			LF	003	
N62474-83-C-6972			SERVICES			METALS	004	IMAGED
			NWC CHINA LAKE					IMAGED
						WELLS	005	CLAK_001
							006	CLAK_001
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Monday, August 27, 2001

This Administrative Record (AR) Index includes references to documents which cite bibliography sources.
These bibliographic citations are considered to be part of this AR but may not be cited separately in the index.

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UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Subject	Classification	Keywords	Sites	Location Box No.
	Record Type	Record Date	Author					
	Contr./Guid. No.	CTO No.	Recipient Affil.					
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							042	
							IAS SITES	

UIC No. / Rec. No.	Doc. Control No.	Record Type	Constr./Guid. No.	Approx. # Pages	Prc. Date	Record Date	Author Affil.	Author	Recipient	Subject	Classification	Keywords	Sites	Location
														Box No.
N60530 / 000010	NONE	LTR	NONE	NONE	01-13-1984	04-10-1985	DHS	SACRAMENTO		REGULATORY REVIEW AND COMMENTS ON THE INITIAL ASSESSMENT STUDY	ADMIN RECORD	COMMENTS IAS	001	NAWS CHINA LAKE
							K. L. SHADDY						002	
							SMU						003	
							SACRAMENTO						004	IMAGED
							A. LANDIS						005	CLAK_001
													006	CLAK_001
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Contr./Guid. No.	CTO No.	Recipient Affil.						
Approx. # Pages	EPA Cat. #	Recipient						
							036	
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							IAS SITES	

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N60530 / 000461	NONE				05-18-1998		CRWQCB LAHANTON REGION	REVIEW OF INITIAL ASSESSMENT STUDY NWC, CHINA LAKE, CA	ADMIN RECORD	IAS	001 002	NAWS CHINA LAKE
LTR					NONE		G. J. THIBEAULT				003 004	IMAGED IMAGED
NONE					01.1		NWC CHINA LAKE T. MCGILL				005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035	CLAK_003 CLAK_003

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N60530 / 000052	NONE	WKPL	NONE	270	03-01-1992 03-01-1992	PRC ENVIRONMENTAL S. J. TIFFANY S. J. TIFFANY NWC CHINA LAKE	FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) FIELD SAMPLING PLAN	ADMIN RECORD	FS FSP RI	001 002 007 008 012 013 015 018 022 029 031 032 043 044 045 RI/FS 91S	NAWS CHINA LAKE IMAGED CLAK_001 CLAK_001
										071 072 073 074 075 076 077 078 079	

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Record Type	Contr./Guid. No.	Record Date	Recipient	Recipient					
Approx. # Pages	EPA Cat. #								
N60530 / 000054	03-01-1992	03-01-1992	PRC	ENVIRONMENTAL	RI/FS QUALITY ASSURANCE PROJECT	ADMIN RECORD	QAPP	001	NAWS CHINA
NONE	03-01-1992	03-01-1992	W. HAUCK	PLAN FINAL			RI/FS	002	LAKE
WKPL	NONE		NWC CHINA LAKE					007	
NONE	03.3							008	IMAGED
139								012	CLAK_001
139								013	CLAK_001
								015	
								018	
								022	
								029	
								031	
								032	
								043	
								044	
								045	
								RI/FS 91S	
N60530 / 000055	03-01-1992	03-01-1992	PRC	ENVIRONMENTAL	RI/FS WORK PLAN, FINAL	ADMIN RECORD	RI/FS	001	NAWS CHINA
NONE	03-01-1992	03-01-1992	W. HAUCK				WORK PLAN	002	LAKE
WKPL	NONE		NWC CHINA LAKE					007	
NONE	03.3							008	IMAGED
364								012	CLAK_001
364								013	CLAK_001
								015	
								018	
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								043	
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								RI/FS 91S	

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Record Type	Contr./Guid. No.	Record Date								
Approx. # Pages	EPA Cat. #	CTO No.								
N60530 / 000069	03-26-1992	03-01-1992	PRC	ENVIRONMENTAL	FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) WORK PLAN ADDENDUM	ADMIN RECORD	FS		001	NAWS CHINA LAKE
NONE							RI		002	
REPO	NONE						WORK PLAN		007	
REPO	03.3								008	IMAGED
NONE									012	CLAK_001
112									013	CLAK_001
112									015	
									018	
									022	
									029	
									031	
									032	
									043	
									044	
									045	
									RI/FS 91S	
N60530 / 000497	07-20-1998	03-01-1993	PRC	ENVIRONMENTAL	DRAFT - TECHNICAL MEMORANDUM 3	ADMIN RECORD	RI		001	CHOICE
NONE					REMEDIAL INVESTIGATION PHASE I		TECH MEMO		002	MICROGRAPHICS
REPO					REPORT APPENDICES A-M AND PLATES					SW00121302
REPO	00052				(APPENDIX G, VOLUMES II - IX -				007	SW00121302
N62474-88-D-5086	03.4				CHROMATOGRAMS AND FIELD DATA				012	
0450					SHEETS ARE MISSING FROM THE REPORT)				013	
									015	
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N60530 / 000086	NONE	04-29-1993	NAWS CHINA LAKE	REQUEST FOR COMMENTS ON: TECHNICAL MEMORANDUM 3, RI PHASE 1 REPORT (W/O ENCL)	ADMIN RECORD	REQUEST	001 002	NAWS CHINA LAKE
LTR	LTR	NONE	T. MCGILL				007	
NONE	NONE	10.1	T. MCGILL				008	IMAGED CLAK_001 CLAK_001
1			DTSC, SACRAMENTO T. BILLINGTON				012 013 015 018 022 029 031 032 043 044 045	
							RI/FS 91S	
N60530 / 000087	NONE	09-03-1993	DTSC, SACRAMENTO	COMMENTS ON RI TECHNICAL MEMORANDUM 3, NAVAL AIR WEAPONS STATION, CHINA LAKE	ADMIN RECORD	COMMENTS	001 002	NAWS CHINA LAKE
LTR	LTR	08-03-1993	T. BILLINGTON				007 008	IMAGED CLAK_001 CLAK_001
NONE	NONE	NONE	T. BILLINGTON				012 013 015 018 022 029 031 032 043 044 045	
8		10.1	NAWS CHINA LAKE J. MCDONALD				RI/FS 91S	

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Record Type	Record Date	Author	Recipient					
Contr./Guid. No.	CTO No.							
Approx. # Pages	EPA Cat. #							
N60530 / 000346	03-12-1998	NAWS CHINA		RESPONSE TO AGENCY COMMENTS ON	ADMIN RECORD	COMMENTS	001	NAWS CHINA
NONE	08-30-1993	LAKE		THE DRAFT TECHNICAL MEMORANDUM 3		RESPONSE	002	LAKE
COMM				REMEDIAL INVESTIGATION PHASE I		TECH MEMO	007	
COMM	NONE			REPORT (UNDATED - USED CRWQCB'S			012	IMAGED
NONE	10.1			COMMENTS DATED 30 AUG. 93 AS RECORD			013	CLAK_002
141				DATE)			015	
							022	
							029	
							031	
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N60530 / 000850	EPA 540-F-93-035				08-27-2001			09-01-1993	U.S. EPA			QUICK REFERENCE FACT SHEET: PRESUMPTIVE REMEDY FOR CERCLA MUNICIPAL LANDFILL SITES	ADMIN RECORD	FACT SHEET LANDFILLS	006 009	BECHTEL NATIONAL SW01082701	
GUID					NONE				NAVFAC - SOUTHWEST DIVISION						010	SW01082701	
NONE															012		
0012															019		
															020		
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N60530 / 000851	EPA 540-F-93-047				08-27-2001	U.S. EPA	QUICK REFERENCE FACT SHEET:	ADMIN RECORD	FACT SHEET	006	BECHTEL
					09-01-1993		PRESUMPTIVE REMEDIES: POLICY AND		LANDFILLS	009	NATIONAL
							PROCEDURES			010	SW01082701
GUID		NONE				NAVFAC -					
NONE						SOUTHWEST				012	
0007						DIVISION				019	
										020	
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N60530 / 000849	EPA A/540/F-96/020				08-27-2001	12-01-1996	U.S. EPA				QUICK REFERENCE FACT SHEET: APPLICATION OF THE CERCLA MUNICIPAL LANDFILL PRESUMPTIVE REMEDY TO MILITARY LANDFILLS	ADMIN RECORD	FACT SHEET LANDFILLS	006 009	BECHTEL NATIONAL	SW01082701
GUID				NONE			NAVFAC - SOUTHWEST DIVISION							010		SW01082701
NONE														012		
0008														019		
														020		
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														067		
N60530 / 000408					03-12-1998		EFA WEST SAN				REQUEST THAT DTSC IDENTIFY STATE ARARS FOR THE REMEDIAL INVESTIGATION/ FEASIBILITY STUDY	ADMIN RECORD	ARAR	012 022	NAWS CHINA LAKE	
NONE					05-11-1997		BRUNO									
LTR							W. YIP									
LTR					NONE		W. YIP									
NONE					04.1		DTSC, SACRAMENTO									IMAGED CLAK_002 CLAK_002
2							L. MCMAHAN									

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Record Type	Contr./Guid. No.	Record Date	Author					
Approx. # Pages	EPA Cat. #	CTO No.	Recipient					
N60530 / 000378	03-12-1998	05-12-1997	NAWS CHINA	COMMENTS ON DRAFT REMEDIAL	ADMIN RECORD	COMMENTS	001	NAWS CHINA
NONE			LAKE	INVESTIGATION PHASE I REPORT (W/O		RI	002	LAKE
LTR			C. SHEPHERD	ENCL)			003	
LTR	NONE		C. SHEPHERD				004	IMAGED
NONE	10.1		DTSC.				005	CLAK_002
1			SACRAMENTO				006	CLAK_002
			L. MCMAHAN				007	
							008	
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Contr./Guid. No.	CTO No.	Recipient						
Approx. # Pages	EPA Cat. #							
N60530 / 000407	03-12-1998 06-18-1997	CRWQCB LAHANTON REGION	RESPONSE TO NAVY'S REQUEST FOR REGIONAL WATER BOARD REQUIREMENTS	ADMIN RECORD			071	NAWS CHINA LAKE
LTR	NONE 10.1	E. LAFFERTY					072	
NONE		EFA WEST SAN BRUNO					073	
10		W. YIP					074	
		DTSC, SACRAMENTO, CA					075	
N60530 / 000393	10-17-2000 06-25-1997	L. K. MCMAHAN L. K. MCMAHAN	REQUEST FOR REQUIREMENTS - ANTICIPATES RESPONSE TO THE NAVY BY 25 JULY 1997	ADMIN RECORD			076	IMAGED IMAGED CLAK_003 CLAK_003
LTR	NONE	NAVFAC - WESTERN DIVISION					077	
NONE		W. YIP					078	
0002		EFA WEST SAN BRUNO					079	
		DTSC, SACRAMENTO, CA					012	
N60530 / 000413	03-12-1998 07-09-1997	W. YIP EFA WEST SAN BRUNO	RESPONSE TO COMMENTS ON THE DRAFT REMEIDAL FEASIBILITY STUDY WORK PLAN FOR SITES 12 & 22	ADMIN RECORD	COMMENTS RESPONSE	RI/FS	022	NAWS CHINA LAKE
LTR	NONE	W. YIP					044	
NONE	03.3	DTSC, SACRAMENTO					045	
17		L. MCMAHAN						
		EFA WEST SAN BRUNO						
N60530 / 000412	03-12-1998 07-15-1997	W. YIP W. YIP	SUBMITTED FOR REVIEW & COMMENT DRAFT RI/FS WORK PLAN, DRAFT FINAL SAP, DRAFT HEALTH & SAFETY PLAN FOR SITES 12 & 22	ADMIN RECORD	COMMENTS FS	H&SP RI	012	BECHTEL NATIONAL SW00071906 SW00071906
LTR	NONE	DTSC, SACRAMENTO					022	
NONE	03.3	L. MCMAHAN						
0001		EFA WEST SAN BRUNO						
		W. YIP						

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N60530 / 000457 NONE LTR LTR NONE 12					03-12-1998 09-10-1997 NONE 10.1		DTSC, SACRAMENTO L. MCMAHAN L. MCMAHAN EFA WEST SAN BRUNO	STATE'S COMMENTS ON THE DRAFT FINAL REMEDIAL INVESTIGATION WORKPLAN AND SAMPLING & ANALYSIS PLAN FOR SITES 12 & 22 JULY 1997	ADMIN RECORD	COMMENTS	012 022	NAWS CHINA LAKE IMAGED CLAK_003 CLAK_003
N60530 / 000343 NONE WKPL NONE 187					03-12-1998 10-01-1997 NONE 03.3		W. YIP TETRA TECH _ EPA WEST SAN BRUNO	FINAL - REMEDIAL INVESTIGATION PHASE II WORK PLAN ADDENDUM FOR SITE 12 & SITE 22	ADMIN RECORD	RI	012 022	NAWS CHINA LAKE
N60530 / 000347 NONE WKPL NONE 0350					03-12-1998 10-01-1997 NONE 03.3		TETRA TECH _ EFA WEST SAN BRUNO	FINAL - SAMPLING AND ANALYSIS PLAN FOR SITE 12 AND SITE 22	ADMIN RECORD	SAP	012 022	IMAGED CLAK_002 BECHTEL NATIONAL SW00071902
N60530 / 000431 NONE WKPL WKPL NONE 0200					03-12-1998 10-01-1997 NONE 03.5		MORRISON KNUDSEN EFA WEST SAN BRUNO	DRAFT FINAL - HEALTH AND SAFETY PLAN FOR SITES 12 & 22 ADDENDUM TO PRC DRAFT BASE WIDE HEALTH AND SAFETY PLAN	ADMIN RECORD	H&SP	012 022	BECHTEL NATIONAL SW00071907 SW00071907
N60530 / 000848 NONE LTR NONE 0004					08-20-2001 10-02-1997 NONE		CAL/EPA G. YOUNG NAVFAC - WESTERN DIVISION	SOLICITATION REQUIREMENTS FOR INVESTIGATION AND REMEDIATION ASSOCIATED WITH SNORT ROAD LANDFILL AND PILOT PLANT ROAD LANDFILL	ADMIN RECORD BASE	ARAR	12 22	BECHTEL NATIONAL
N60530 / 000566 NONE LTR LTR NONE 0001					08-26-1998 10-28-1997 NONE 10.1		W. YIP EFA WEST SAN BRUNO W. YIP W. YIP DTSC SACRAMENTO L. MCMAHAN	FINAL RI/FS WORK PLAN, SAMPLING & ANALYSIS PLAN AND HEALTH AND SAFETY PLAN FOR SITES 12 AND 22 SENT FOR INFORMATION, USE AND RECORD	ADMIN RECORD	HSP RI/FS SAP	012 022	CHOICE MICROGRAPHICS SW00121304 SW00121304

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N60530 / 000614	NONE	REPO	NONE	NONE	12-08-1998 11-30-1997	NONE	MORRISON KNUDSEN CORP.	ERRATA TO REVISION 0 OF FINAL SAMPLELINE AND ANALYSIS PLAN	ADMIN RECORD	SAP	012 022	BECHTEL NATIONAL SW00102005
NONE	NONE	REPO	NONE	NONE	02.1		M. D. GODWIN EFA/WEST, SAN BRUNO, CA					
0150							W. J. UIP					
N60530 / 000677	NONE				07-23-1999 07-08-1999		MORRISON KNUDSEN CORPORATION	DRAFT - PHASE II REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT (2 VOLUMES) (SEE AR #764 - RESPONSE TO AGENCY COMMENTS & AR #806 - DTSC COMMENTS)	ADMIN RECORD	R/FS	012 022	CHOICE MICROGRAPHICS SW01011002 SW01011002
REPO					00050 03.4		M. D. GODWIN					
N62474-94-D-7609							NAWS CHINA LAKE					
0500												
N60530 / 000774	NONE				03-24-2000 09-21-1999		DTSC J. WOODLING	REVIEW OF AND COMMENTS ON REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT, DATED 7/99 (SEE AR #677 - R/FS)	ADMIN RECORD	COMMENTS FS	012 022	CHOICE MICROGRAPHICS SW01011007 SW01011007
LTR					NONE		OFFICE OF MILITARY FACILITIES M. VEST				POI 151	
NONE											POI 178 POI 179	
0008												
N60530 / 000806	NONE				09-26-2000 09-28-1999		DTSC - SACRAMENTO, CA.	COMMENTS BY DTSC ON THE DRAFT PHASE II REMEDIAL INVESTIGATION/ FEASIBILITY STUDY REPORT (SEE AR #677 R/FS REPORT, & AR #764 - RESPONSE TO AGENCY COMMENTS)	ADMIN RECORD	ARSENIC COMMENTS COPC	012 022	CHOICE MICROGRAPHICS SW01011008 SW01011008
MISC					NONE		M. VEST					
NONE							NAVFAC - SOUTHWEST DIVISION T. MARTIN			FS GW HERBICIDE LF METALS PRG RI SB SOIL WATER WELLS		
0010												

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UIC No. / Rec. No.	Doc. Control No.	Record Type	Contr./Guid. No.	Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60530 / 000764 NONE RPT RPT N62474-94-D-7609 0500					03-24-2000 01-21-2000 00050	MORRISON KNUDSEN M. GODWIN M. GODWIN DTSC M. PURCELL	RESPONSE TO AGENCY COMMENTS ON THE DRAFT PHASE II REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT (SEE AR #677 DRAFT RI/FS, AR #806 - DTSC COMMENTS & #833 - FINAL RI/FS)	ADMIN RECORD	COMMENTS FS RI	012 022	CHOICE MICROGRAPHICS SW01011006 SW01011006
N60530 / 000782 NONE LTR NONE 0003					03-24-2000 02-16-2000 NONE	DTSC M. VEST NAVFAC - SOUTHWEST DIVISION T. MARTIN	REVIEW OF RESPONSE TO COMMENTS ON DRAFT PHASE 2 REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) (WITHOUT ENCLOSURE, SEE COMMENTS) (SEE AR #774)	ADMIN RECORD	COMMENTS FS RI	012 022	CHOICE MICROGRAPHICS SW01011007 SW01011007

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Record Type	Contrl./Guid. No.	Record Date	Author	Recipient						
Approx. # Pages		CTO No.								
		EPA Cat. #								
N60530 / 000833	10-17-2000		MORRISON			FINAL - PHASE II REMEDIAL	ADMIN RECORD	1,2-DCP	012	CHOICE
4545-0050-D-M-CA-0	03-22-2000		KNUDSEN			INVESTIGATION/FEASIBILITY STUDY		2,4,5-T	022	MICROGRAPHICS
0681-00			CORPORATION			REPORT (2 VOLUMES) - INCLUDES				SW00121308
0681-00	00050					RESPONSE TO AGENCY COMMENTS ON		2,4-D		SW00121308
RPT			M. GODWIN							
RPT			NAVFAC -			THE DRAFT PHASE II REMEDIAL		DCA		
N62474-94-D-7609			NAVFAC -			INVESTIGATION/FEASIBILITY STUDY		DCE		
			SOUTHWEST			REPORT DATED JULY 1999		DDT		
0700			DIVISION					FS		
								HDPE		
								MEK		
								OCF		
								OPP		
								PAH		
								PCB		
								PCE		
								PVC		
								ROD		
								SVOC		
								SWAT		
								TCA		
								TCDD		
								TCE		
								TDS		
								TPH		
								TPH-D		
								UXO		
								VOC		
N60530 / 000612	10-18-2000		TETRA TECH EM			DRAFT PROPOSED PLAN/REMEDIAL	ADMIN RECORD		012	CHOICE
DS 0318.14668	10-01-2000		INC.			ACTION PLAN	INFO			MICROGRAPHICS
PLAN	00318						REPOSITORY			SW00121305
N62474-94-D-7609			NAVFAC -							
			SOUTHWEST							
			DIVISION							
0011										

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UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Confr./Guid. No.	CTO No.	Recipient Affil.	Approx. # Pages	EPA Cat. #	Subject	Classification	Keywords	Sites	Location Box No.
(([RECORD NUMBER]=343 Or [RECORD NUMBER]=347 Or [RECORD NUMBER]=408 Or [RECORD NUMBER]=413 Or [RECORD NUMBER]=457 Or [RECORD NUMBER]=566 Or [RECORD NUMBER]=612 Or [RECORD NUMBER]=614 Or [RECORD NUMBER]=677 Or [RECORD NUMBER]=677 Or [RECORD NUMBER]=764 Or [RECORD NUMBER]=774 Or [RECORD NUMBER]=806 Or [RECORD NUMBER]=833 Or [RECORD NUMBER]=16 Or [RECORD NUMBER]=10 Or [RECORD NUMBER]=461 Or [RECORD NUMBER]=52 Or [RECORD NUMBER]=54 Or [RECORD NUMBER]=55 Or [RECORD NUMBER]=69 Or [RECORD NUMBER]=497 Or [RECORD NUMBER]=86 Or [RECORD NUMBER]=87 Or [RECORD NUMBER]=346 Or [RECORD NUMBER]=378 Or [RECORD NUMBER]=407 Or [RECORD NUMBER]=393 Or [RECORD NUMBER]=412 Or [RECORD NUMBER]=431 Or [RECORD NUMBER]=782 Or [RECORD NUMBER]>=848 And [RECORD NUMBER]<=851)) AND [UIC NUMBER]=N60530'																

Monday, August 27, 2001

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APPENDIX C
RESPONSE TO STATE COMMENTS

FINAL RESPONSE TO COMMENTS
DRAFT RECORD OF DECISION FOR SITE 12 CHINA LAKE
August 28, 2001

INTRODUCTION

This document presents Navy response to comments on the draft record of decision for Site 12. Comments were provided in a letter titled "Review of Draft Record of Decision / Remedial Action Plan, September 29, 2000, Naval Air Weapons Station, China Lake, California," from the California Department of Toxic Substances Control (DTSC), and the Lahontan Regional Water Quality Control Board (RWQCB), presenting comments from both the DTSC and the RWQCB, dated May 7, 2001.

COMMENTS FROM THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL AND LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD

Comment 1: Page 4, Section 2.1, paragraph 4: the following text should be added to the beginning of the first sentence; *It is the Department of the Navy's position that,*

Response: The assumption is that this phrase is meant to precede the third paragraph since there is no fourth paragraph. The Navy is the lead agency and intends to act accordingly with all of the requisite authority and responsibility. The Navy feels that it is not necessary to add this phrase.

Comment 2: Page 5, Section 2.2, paragraph 2: the description is difficult for the reader to understand. This description should be amended to more clearly describe the site as has been done in the draft public notice dated February 2001. In addition, the use of Figure 2 from the public notice would also help the reader better understand site conditions.

Response: The description in the proposed plan is clearer than what is included in the draft ROD and will be used in the final ROD. Figure 2 in the draft ROD provides the same information as Figure 2 in the draft proposed plan. Figure 2 in the draft ROD actually shows a greater area at a larger scale. The final ROD will use the same Figure 2 as the draft ROD.

Comment 3: Page 7, Section 5.0, paragraph 4: this paragraph refers to Site 22 and may have been transposed from the Site 22 document.

Response: This comment does not correspond with this document. The DTSC issued an e-mail on June 4, 2001 clarifying to disregard this comment.

General: DTSC should be able to approve the final plan after the changes discussed in this letter are incorporated and reviewed. In addition, DTSC looks forward to working out the specific details that will be developed in the remedial design. Those specifics will include: the frequency of monitoring and the parameters monitored for; the need for additional monitoring wells; inspection of construction activities; and post closure maintenance. This list is not comprehensive and DTSC reserves the

option of commenting further on all appropriate sections of the remedial design document. The remedy must be equivalent to the prescriptive requirements of Title 27, California Code of Regulations (CCR) for Landfill Closure and Post-Closure, and California Water Code (CWC) required reporting and scheduling for landfill Closure and Post Closure Monitoring and Reporting. Final approval will also be required by the Lahontan Regional Water Quality Control Board.

Response: Navy has included DTSC and RWQCB in the design process that has occurred subsequent to the May 7 date of this letter, and both agencies have indicated that they are in agreement regarding details of the design.

The details of the groundwater-monitoring plan will be developed separately from and subsequent to the design. Navy will certainly seek input from both DTSC and RWQCB when this plan is developed.